

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
16 June 2005 (16.06.2005)

PCT

(10) International Publication Number
WO 2005/054384 A1

(51) International Patent Classification⁷: **C09D 151/00, C08F 265/06, 2/22**

(74) Common Representative: **BASF AKTIENGESELLSCHAFT; 67056 Ludwigshafen (DE).**

(21) International Application Number:
PCT/EP2004/013616

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 1 December 2004 (01.12.2004)

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
**03027939.2 4 December 2003 (04.12.2003) EP
03028007.7 5 December 2003 (05.12.2003) EP**

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **BASF Aktiengesellschaft [DE/DE]; 67056 Ludwigshafen (DE).**

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2005/054384 A1

(54) Title: **LOW-VOC AQUEOUS COATING COMPOSITIONS WITH EXCELLENT FREEZE-THAW STABILITY**

(57) Abstract: The present invention relates to an aqueous coating composition having excellent freeze-thaw stability and a low-VOC content, comprising a multi-stage polymer dispersion comprising (a) an inner phase comprising at least one latex polymer derived from at least one monomer and at least one polymerizable alkoxyLATED surfactant having the structure: R¹-R² wherein R¹ is an allyl group selected from the group consisting of CH₃-CH=CH- and CH₂=CH-CH₂-, or an acrylic group and R² is a radical comprising at least two carbon atoms and at least one oxyethylene or oxypropylene unit; (b) an outer phase having a glass transition temperature of from 30°C to 110°C containing at least one ethylenic unsaturated monomer (c) at least one pigment; (d) water; and (e) less than 3.0 % by weight based on the total weight of the aqueous coating composition of anti-freeze agents.